

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

AMPEX CORPORATION,

Plaintiff,

V.

EASTMAN KODAK COMPANY,
ALTEK CORPORATION, and
CHINON INDUSTRIES, INC.,

Defendants.

C.A. No. 04-1373 (KAJ)

REDACTED VERSION

**DECLARATION OF NORMAN H. BEAMER SUBMITTING
EVIDENCE RELEVANT TO CLAIM CONSTRUCTION**

OF COUNSEL:

Jesse J. Jenner
Sasha G. Rao
Ropes & Gray LLP
1251 Avenue of the Americas
New York, NY 10020
(212) 596-9000

Norman H. Beamer
Gabrielle E. Higgins
Ropes & Gray LLP
525 University Avenue
Palo Alto, CA 94301
(650) 617-4000

James E. Hopenfeld
Ropes & Gray LLP
One Metro Center
700 12th Street, NW
Washington, DC 20005
(202) 508-4600

MORRIS NICHOLS ARSHT & TUNNELL LLP

Jack B. Blumenfeld (#1014)

Julie Heaney (#3052)

1201 North Market Street

P.O. Box 1347

Wilmington, DE 19899-1347

(302) 658-9200

jblumenfeld@mnat.com

jheaney@mnat.com

Attorneys for Plaintiff Ampex Corporation

Original Filing Date: May 23, 2006

Redacted Filing Date: May 31, 2006

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

AMPEX CORPORATION,)	
)	
<i>Plaintiff,</i>)	
)	
v.)	C.A. No. 04-1373-KAJ
)	
EASTMAN KODAK COMPANY,)	
ALTEK CORPORATION, and)	
CHINON INDUSTRIES, INC.,)	
)	
<i>Defendants.</i>)	
)	

**DECLARATION OF NORMAN H. BEAMER SUBMITTING EVIDENCE
RELEVANT TO CLAIM CONSTRUCTION**

I, Norman H. Beamer, declare as follows:

1. I am a member of the firm of Ropes & Gray LLP, 525 University Avenue, Palo Alto, California, counsel to Plaintiff Ampex Corporation ("Ampex") in this action. I make this declaration in support of Ampex Corporation's Claim Construction Brief.

Unless otherwise stated, I make this declaration based on personal knowledge.

2. References herein to the "intrinsic evidence" are references to the intrinsic evidence submitted to the Court in connection with the Joint Claim Construction Chart.

3. Attached as Exhibit 1 is a copy of selected pages of the *Ninth New Collegiate Dictionary*, Merriam-Webster, 1987 (AX205678-82: "audio", "radio", "video").

4. Attached as Exhibit 2 is a copy of selected pages of the BKSTS Dictionary of Image Technology, Focal Press, 1983, 1988 (EKC000156342-348, at EKC000156347: "video").

5. Attached as Exhibit 3 is a copy of selected pages of the *McGraw-Hill Dictionary of Scientific and Technical Terms*, McGraw-Hill Book Company, 2nd ed., 1978 (AX201313, *et seq.*, at AX201335: “video”).

6. Attached as Exhibit 4 is a copy of selected pages of the *Electronics Dictionary*, 1978 (EKC000155864 *et seq.*, at EKC000155916: “video”).

7. Attached as Exhibit 5 is a copy of selected pages of the Van Nostrand’s Scientific Encyclopedia, Sixth Edition (1983) (AX201336, *et seq.*, at AX201339: “pixel”).

8. Attached as Exhibit 6 is a copy of selected pages of the Kodak Digital Learning Center: Glossary (AX200569: “pixel”).

9. Attached as Exhibit 7 is a copy of a page from the *TechEncyclopedia* (EKC000156377: “video”).

10. Attached as Exhibit 8 is a copy of selected pages of *The Compact Edition of the Oxford English Dictionary*, 1987 Supp. (AX205536-40 at AX205539: “video”).

11. Attached as Exhibit 9 is a copy of a document entitled “Video Standards” (AX205683-85).

12. Attached as Exhibit 10 is a copy of U.S. Patent 4,205,780, issued in 1980 (AXD024562-86), entitled “Document Processing System And Method,” which issued June 3, 1980. The patent describes a system that stores numerous single-frame images of documents, such as checks being processed in a bank clearing house. The patent describes the use of a “video camera” to “capture the video image of each document” (5:57-58). In one embodiment, the “video image of each document is digitized....” (6:5-6). The camera is controlled so that it scans each document only once, at a resolution

significantly higher (384x1024) than 1983-era broadcast standards. (6:24-11:23-42, 19:60-61). The patent discloses that the 36,000 checks are scanned per hour (6:27), which means that ten frames are scanned per second, a rate significantly slower than the 30-60 frames per second for motion video.

13. Attached as Exhibit 11 is a copy of U.S. Patent 4,503,466, filed in 1982 (AXD033391-98). The patent uses the term “video signal” in the context of surveillance cameras that scan at a frame rate as low as one picture every 3 seconds, which is not a broadcast television standard. (1:15, 2:20, 6:20).

14. Attached as Exhibit 12 is a copy of selected pages of the March 1980 issue of *International Broadcast Engineer* (AXD039025, *et seq.*, at AXD039031).

15. Attached as Exhibit 13 is a copy of selected pages of the May 1983 issue of *International Broadcast Engineer* (AX020220, *et seq.*, at AX020236).

16. Attached as Exhibit 14 is a copy of selected pages of the 3/22/05 transcript of the deposition of Dan Beaulier (Tr. 91-92).

17. Attached as Exhibit 15 is a copy of a “Conversation With Richard Taylor, Quantel’s Creative Vision” (AX021761-768). At p. AX021766, Mr. Taylor states, “We also started to notice that we were selling a lot of video Paintboxes in areas that had nothing whatsoever to do with broadcast television.”

18. Attached as Exhibit 16 is a copy of selected pages from Freedman, *The Computer Glossary for Everyone: It’s Not Just a Glossary!* (3rd ed., 1983) (AXD039035, *et seq.*, at AXD039037: “data”).

19. Attached as Exhibit 17 is a copy of selected pages from “Webster’s New Universal Unabridged Dictionary” (AXD039032, *et seq.*, at AXD039034: “data”).

20. The terms “data” and “data set” were not identified by Kodak as terms to be defined until May 16, 2006, and likewise the “digital numerical information” aspect of Kodak’s definitions of “video data” and “video pixel data” were not revealed until that same date.

21. Previously, Kodak’s expert has taken the position that “successive full size images” in claim 7 referred to adjacent frames of video images in a motion video. If Kodak renews this argument, Ampex would object, and conditionally argue that, literally applied, this construction would prevent claim 7 from covering the preferred embodiment, because when any full size image is first captured stored in the frame store, the reduced size image is generated and stored back in the frame store, before both are stored on bulk store. Ampex would argue that, during this process, assuming the input video is motion video, innumerable “successive” frames (by Kodak’s definition) would have been lost, because there is no way that a user could manually capture the images at the rate of a motion video input (*e.g.*, at 30 frames per second).

22. In this declaration, references to “Paper No. __” refer to the document so numbered in the prosecution history file of the 121 patent. The pertinent Papers are included in the intrinsic evidence submitted to the Court in connection with the Joint Claim Construction Chart. Application claim 18 (which issued as claim 7) originally read (Paper No. 25, p. 6):

An apparatus for storing video pixel data representing video images of a first resolution and, for each image at a first resolution a corresponding video image at a second resolution comprising:

random access memory means for storing video pixel data representing a full size image at said first resolution and a corresponding reduced size version thereof at a second resolution;

means for storing one at a time in said random access memory means a plurality of said full size images....

The Examiner rejected this claim as indefinite, because it was unclear “how the storing recited in lines 9 and 10 (i.e. the means for storing “one at a time”) relates to the storing recited in lines 5-8.” (Paper 26, p. 4). The applicant amended the claim to incorporate the term “storing one at a time” into the random access memory means by using the term “succession” — *i.e.*, as amended, claim 18 read “random access memory means for individually storing video pixel data representing one of a succession of full size images” (Paper 28, p. 7). The applicant added the other occurrences of “successive” and “succession” accordingly. The applicant stated in connection with this amendment: “The passage in lines 9, 10 was deleted as redundant, and the language in lines 5-8 is amended to clarify the storing of full and reduced size image data.” (*Id.* at 17).

23. Ampex’s proposed definition of “resolution” is, “The size of the image, measured in picture elements pixels and/or lines.” (*Construction 8*). The ‘121 patent states (3:57-65):

“.... out of a 525 line NTSC frame of data only about 484 lines represent video data. Because of the two dimensional nature of a video image a quarter size image defined by video data having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full spatial resolution image. A quarter resolution image thus requires the equivalent storage of 30 lines of a full resolution image.”

24. Attached as Exhibit 18 is a copy of selected pages from *McGraw-Hill Dictionary of Scientific and Technical Terms* (McGraw-Hill Book Company, 2nd ed., 1978) (AX201313, *et seq.*, at AX201331: “raster”).

25. Attached as Exhibit 19 is a copy of selected pages from Freedman, *The Computer Glossary for Everyone: It's Not Just a Glossary!* (3rd ed., 1983), “Raster Graphics” (AX203284, *et seq.*, at AX203312).

26. Attached as Exhibit 20 is a copy of selected pages from <http://www.pctechguide.com/glossary> (AX203315-324, at AX203323: "raster").

27. Attached as Exhibit 21 is a copy of a web page entitled "raster" at http://whatis.techtarget.com/definition/0,289893,sid9_gci212870,00.html (AX203258-61)

28. A copy of U.S. Patent 4,152,722 is included in the submission of intrinsic evidence (EKC000142599-606).

29. Attached as Exhibit 22 is a copy of an article dated December 13, 1982, entitled "The Hell Chromacom: A Tool for Today, a Vision for Tomorrow" by George A. Alexander, as published in The Seybold Report on Publishing Systems at pp. 7-2 through 7-17 (EKC000142124-35). This article has been relied upon by Kodak's ITC expert Peter Stansfield and its expert Dr. Dieter Preuss in their analyses of the validity of the asserted claims in light of the Hell Chromacom system. This article describes full size images in a computer system as having a larger resolution than that supported by the particular display in that computer system, and characterizes the image as "display(able):"

The screen of the Combiskop can display a maximum of 512 "pixels" (image points) in the horizontal and vertical directions. An 8" square image, at 300 dots per inch, requires 2400 pixels in each direction to be shown at full resolution. Such resolution is beyond the state of the video-display art, so the Combiskop (or any competing product) must show either the whole image at reduced resolution or a portion of the image at full resolution.

...
Either resolution image can be loaded into image memory and displayed on the screen. If full resolution is chosen, a 512-pixel-by-512-pixel block is loaded. Generally, this is only part of the whole image. Some operations are handled best at full resolution, and these must often be done one piece of the image at a time.

(EKC000142126-27)

30. Attached as Exhibit 23 is a copy of selected pages from a Quantel manual entitled "Picturebox Operator's Manual Reference" (QL012, *et seq.*, at QL072).

31. Kodak's expert Dr. Storer has taken the position that the either/or dichotomy of claims 8, 11 and 14 require transfer of either a full size or a *single* reduced size image. This position was first disclosed in Kodak's expert's report dated April 24, 2006, after identification of claim construction positions were due.

32. Attached as Exhibit 24 is a copy of selected pages from "Webster's New Universal Unabridged Dictionary" (AXD002089, *et seq.*, at AXD002092-93: "direct", "directly")

33. Attached as Exhibit 25 is a copy of selected pages from "The Random House Dictionary Of The English Language" (AXD002096, *et seq.*, at AXD002098, 101: "corresponding"; "select"; "selective").

34. Attached as Exhibit 26 is a copy of selected pages from the 5/17/05 deposition transcript of George Almeida (Tr. 88-89).

35. The following statement appears in Paper 30 at 9-10:

Applicant's invention ... as described and claimed, provides image reduction via his size reducer (26) coupled only to the frame store (22), and which receives the full size image only from the frame store whenever there is no reduced size image, and which then returns the reduced size image directly back to the frame store for storage thereof simultaneously with the corresponding full size image.

36. Paper 17, p. 2, refers to a drawing amendment, which amendment is attached to that paper. This drawing amendment created a direct connection between the size reducer and the bulk store. At that time, application claim 20 was specifically directed to this connection on this amended drawing. In Paper 20, claim 20 was amended and no longer was directed to this aspect of the Figure.

37. The '121 patent states that "The system may further include an image size reducer" (2:17-18). This statement is relevant to application claim 1, which did not require a size reducer, but which did not issue. All of the issued claims require a size reducer.

38. Attached as Exhibit 27 is a copy of the McGraw-Hill Dictionary Of Scientific And Technical Terms (McGraw-Hill Book Company, 2nd ed., 1978). (AXD002102, *et seq.*, at AXD002104: "port").

39. In the Patent Office, in describing the '121 system, Ampex stated: "Applicant's frame store 22 then supplies both the full size image and its corresponding reduced size image back to his disc store 24 for storage together." 4/29/88 Amendment, p. 19 (Paper 28).

40. Application claim 29 was the immediate predecessor of issued claims 13 and 15, and the pertinent element originally read:

selectively accessing either one of the data sets of the plurality of full size images or the sets of the corresponding plurality of the reduced size reproduction images simultaneously.
(Paper 28 at 16).

When it added this claim, Ampex described it as follows:

Claim 29 include steps of providing data sets for a plurality of full size images, generating a like plurality of reduced size images from the respective data sets of full size images, storing both the full size data sets and the reduced size data sets in respective groups of storage locations, and selectively accessing either, one of the full size data sets or (all) of the reduced size data sets simultaneously.
(Paper 28 at 21).

In response to a subsequent rejection, Ampex amended claim 29 to read:

selectively accessing one of the data sets of the plurality of full size images, or the set of the corresponding plurality of the reduced size reproduction images simultaneously.

(Paper 30 at 4-5).

41. Attached as Exhibit 28 is a copy of selected pages from the Manual of Patent Examining Procedure, MPEP § 1302.04 (AX212232-37).

42. Kodak's ITC expert Mr. Herot defined the art of the '121 patent as: "the general field of computer graphics more than the particular field of television or cameras or video or any of those things" (Herot 6/14/2005 Tr. at 14:3-6, attached as Exhibit 29).

43. Kodak's expert Dr. Preuss on page 16 of his deposition transcript, indicated that the claims of the '121 patent were not limited to television broadcasting systems, and "At least they could be applied also to the pre-press systems in the pre-press field, pre-press area." (Preuss 5/5/2006 Tr. at 16:6-11, attached as Exhibit 30).

44. Kodak's ITC expert, Mr. Peter Stansfield, defined the pertinent art as: "the field of dealing with digital images" (Stansfield 6/9/2005 Tr. at 12:8-9). Additionally, Mr. Stansfield testified: "I do not believe the claims to be limited to television systems" (Stansfield 6/9/2005 Tr. at 20:22-21:1; see also 21:7-11). (Copies attached as Exhibit 31).

45. Another of Kodak's ITC (as well as Delaware) experts, Dr. Brad Myers, defined the pertinent art as: "video processing of images and image processing" (Myers 6/10/2005 Tr. at 12:11-12, attached as Exhibit 32).

46. At his deposition, Kodak's ITC expert Dr. Shoup was asked, "In your opinion, does a drawing created by a user constitute video pixel data representing a video image as required by claim 7 of the '121 patent?" In response, Dr. Shoup testified, "You could consider it video pixel data, yes." (Shoup 6/13/2005 Tr. at 19:4-22, attached as Exhibit 33).

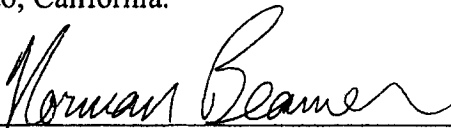
47. In the March 24, 2006 Initial Expert Report of Dr. Brad A. Myers, Paragraph 41, Dr. Myers indicates that “various algorithms for reducing pictures were well known at this time, and had appeared in computer graphics and image processing textbooks” (Myers Report, p. 11, attached as Exhibit 34).

48. In the March 24, 2006 Initial Expert Report to Richard John Taylor, Mr. Taylor stated that by the “mid-to-late-1970s” it “was common for electronic still stores to have a size reducer.” (Taylor Report, ¶¶ 27, 33, attached as Exhibit 35).

49. In its ITC interrogatory responses, Kodak stated that by 1980 the use of size reducers was commonplace (Kodak’s December 13, 2004 Response to ITC Interrogatory No. 34 at p. 47, attached as Exhibit 36).

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 23rd day of May, 2006, at Palo Alto, California.



Norman H. Beamer

EXHIBIT 1

Ninth New Collegiate Dictionary

A Merriam-Webster®

MERRIAM-WEBSTER INC., *Publishers*
Springfield, Massachusetts, U.S.A.

AX205678



A GENUINE MERRIAM-WEBSTER

The name *Webster* alone is no guarantee of excellence. It is used by a number of publishers and may serve mainly to mislead an unwary buyer.

A *Merriam-Webster*® is the registered trademark you should look for when you consider the purchase of dictionaries or other fine reference books. It carries the reputation of a company that has been publishing since 1831 and is your assurance of quality and authority.

Copyright © 1987 by Merriam-Webster Inc.

Philippines Copyright 1987 by Merriam-Webster Inc.

Library of Congress Cataloging in Publication Data
Main entry under title:

Webster's ninth new collegiate dictionary.

Based on Webster's third new international dictionary.

Includes index.

1. English language—Dictionaries. I. Merriam-Webster Inc.

PE1628.W5638 1987 423 86-23801

ISBN 0-87779-508-8

ISBN 0-87779-509-6 (indexed)

ISBN 0-87779-510-X (deluxe)

Webster's Ninth New Collegiate Dictionary principal copyright 1983

COLLEGIATE trademark Reg. U.S. Pat. Off.

All rights reserved. No part of this book covered by the copyrights hereon may be reproduced or copied in any form or by any means—graphic, electronic, or mechanical, including photocopying, taping, or information storage and retrieval systems—without written permission of the publisher.

Made in the United States of America

242526RMcN87

AX205679

au-dio-ge-nic \ə-ˈdɪ-ə-ˈjɛn-ɪk\ *adj* (1941) : produced by frequencies corresponding to sound waves — used esp. of epileptoid responses
au-di-o-gram \ə-ˈdɪ-ə-ˈɡrɑːm\ *n* (1927) : a graphic representation of the relation of vibration frequency and the minimum sound intensity for hearing
au-di-o-ling-u-al \ə-ˈdɪ-ə-ˈlɪŋ-ɡw(ə)-wəl\ *adj* (ca. 1957) : involving a drill routine of listening and speaking in language learning
au-di-o-lo-gy \ə-ˈdɪ-ə-ˈlɔː-ʒi\ *n* (1946) : a branch of science dealing with hearing; *specif* : the study of individuals having impaired hearing — au-di-o-log-i-cal \-ˈɔː-ˈlɔː-ʒi-kəl\ *also* au-di-o-log-ic \-ˈɔː-ˈlɔː-ʒi-k\ *adj* — au-di-o-log-ist \-ˈɔː-ˈlɔː-ʒɪst\ *n*
au-di-o-m-e-ter \ə-ˈdɪ-ə-ˈmɛ-tər\ *n* (1879) : an instrument used in measuring the acuity of hearing — au-di-o-m-e-ric \-ˈɔː-ˈmɛ-trɪk\ *adj* — au-di-o-m-e-try \-ˈɔː-ˈmɛ-tri\ *n*
au-di-o-phil-e \ə-ˈdɪ-ə-ˈfɪl\ *n* (1951) : one who is enthusiastic about high-fidelity sound reproduction
au-di-o-tape \ə-ˈdɪ-ə-ˈtæp\ *n* (1963) : a tape recording of sound
au-di-o-vi-sual \ə-ˈdɪ-ə-ˈvɪʒ-(ə)-wəl, -ˈvɪʒ-əl\ *adj* (1937) 1 : designed to aid in learning or teaching by making use of both hearing and sight 2 : of or relating to both hearing and sight
au-di-o-vi-su-als \-wəlz, -əlz\ *n pl* (1955) : teaching materials (as filmstrips accompanied by recordings) that make use of both sight and sound
'au-dit \ə-ˈdɪt\ *n* [ME, fr. L. *auditus* act of hearing, fr. *auditus*, pp.] (15c) 1 a : a formal examination of an organization's or individual's accounts or financial situation b : the final report of an audit 2 : a methodical examination and review — au-dit-able \-ˈɔː-bəl\ *adj*
'audit *vt* (15c) 1 : to perform an audit on or for (the books) (the company) 2 : to attend (a course) without working for or expecting to receive formal credit
'au-di-tion \ə-ˈdɪʃ-ən\ *n* [MF or L. MF, fr. L. *audition-*, *auditis*, fr. *auditus*, pp. of *audire*] (1599) 1 : the power or sense of hearing 2 : the act of hearing; *esp* : a critical hearing (an ~ of new recordings) 3 : a trial performance to appraise an entertainer's merits
'audition *vb* au-di-tioned; au-di-tion-ing \-ˈdɪʃ-(ə)-ɪŋ\ *vi* (1934) : to test *esp*. in an audition ~ *vi* : to give a trial performance
au-di-tive \ə-ˈdɪ-tɪ-v\ *adj* (15c) : AUDITORY
au-di-tor \ə-ˈdɪ-tər\ *n* (14c) 1 : one that hears or listens; *esp* : one that is a member of an audience 2 : one authorized to examine and verify accounts 3 : one that audits a course of study 4 : one that hears (as a court case) in the capacity of judge
au-di-to-ri-um \ə-ˈdɪ-ə-ˈtɔːr-ɪ-əm, -ˈtɔːr-ɪ- n pl -ri-ums *also* -ria \-ˈɔː-ri\ [L, lit., lecture room] (ca. 1727) 1 : the part of a public building where an audience sits 2 : a room, hall, or building used for public gatherings
au-di-tor-y \ə-ˈdɪ-ə-ˈtɔːr-ɪ, -ˈtɔːr-ɪ\ *n* [ME *auditorie*, fr. L. *auditorium*] (14c) 1 *archaic* : AUDIENCE 2 *archaic* : AUDITORIUM
'au-di-tor-y *adj* [LL *auditorius*] (1578) : of, relating to, or experienced through hearing
auditory nerve *n* (1724) : either of the 8th pair of cranial nerves connecting the inner ear with the brain and transmitting impulses concerned with hearing and balance — *see* EAR illustration
Auf-klä-rung \ˈaʊf-klə-rʊŋ, -kler-ən\ *n* [G] (1842) : ENLIGHTENMENT 2 auf Wie-der-seh-en \aʊf-ˈvɛ-dər-zə-(ə)-m\ *interj* [G, lit., till seeing again] (1885) — used to express farewell
Au-ge-an \ə-ˈʒi-ən\ *adj* [L. *Augeus*, king of Elis, fr. Gk. *Augeias*; fr. the legend that his stable, left neglected for 30 years, was finally cleaned by Hercules] (1599) : extremely formidable or difficult and occas. distasteful (an ~ task)
Augean stable *n* (1635) : a condition or place marked by great accumulation of filth or corruption (every government should attend to cleaning its own Augean stables)
au-gment \ə-ˈdʒɛnt\ *n* [L. *augendus*, gerundive of *augere* to increase — more at EKE] (ca. 1909) : a quantity to which an addend is added
au-ger \ə-ˈɡər\ *n* [ME, *alter*. (resulting from incorrect division of *a nauger*) of *nauger*, fr. OE *nafoſgar*; akin to OHG *nauber* *au-ger*, OE *gār* spear — more at GORE] (bef. 12c) 1 : a tool for boring holes in wood consisting of a shank with a crosswise handle for turning, a central tapered screw, and a pair of cutting lips 2 : any of various instruments or devices made like an auger and used for boring (as in soil), forcing (as through a meat grinder), or for moving material (as in a snow thrower)
'au-ght \ˈoʊt, ˈaɪt\ *pron* [ME, fr. OE *āwht*, fr. *ā* ever + *wht* creature, thing — more at AYE, WIGHT] (bef. 12c) 1 : ANYTHING 2 : ALL (for ~ I care)
'au-ght *adv*, *archaic* (13c) : AT ALL
'au-ght *n* [alter. (resulting from incorrect division of *a naught*) of *naught*] (1872) 1 : ZERO, CIPHER 2 *archaic* : NONENTITY, NOTHING
au-gi-te \ə-ˈdʒɪt\ *n* [L. *augites*, a precious stone, fr. Gk. *augiēs*] (1804) 1 : a mineral consisting of an aluminous oxide, black or dark green pyroxene that is found in igneous rocks 2 : PYROXENE — au-gi-te \ə-ˈdʒɪt-ik\ *adj*
'au-g-ment \ə-ˈɡ-ment\ *vb* [ME *augmenten*, fr. MF *augmenter*, fr. LL *augmentare*, fr. *augmentum* increase, fr. *augere* to increase — more at EKE] *vi* (15c) : to become augmented *vt* 1 : to make greater, numerous, larger, or more intense (the impact of the report was ~ed by its timing) 2 : to add an augment to 3 : SUPPLEMENT (the ~ed her scholarship by working nights) *syn see* INCREASE — au-g-ment-er *or* au-g-men-tor \-ˈment-ər\ *n*
'au-g-ment \ə-ˈɡ-ment\ *n* (1771) : a vowel prefixed or a lengthening of the initial vowel to mark past tense, as in Greek and Sanskrit verbs
au-g-men-ta-tion \ə-ˈɡ-ment-ə-ti-ən, -men-ɪ\ *n* (14c) 1 a : the act or process of augmenting b : the state of being augmented 2 : something that augments : ADDITION
'au-g-men-ta-tive \ə-ˈɡ-ment-ət-ɪ-v\ *adj* (15c) 1 : able to augment 2 : indicating large size and sometimes awkwardness or unattractiveness — used of words and affixes; compare DIMINUTIVE
'augmentative *n* (1804) : an augmentative word or affix

ʌ\ about ɪ\ kirten, F table ɔr\ further ʌ\ ash ǎ\ ace ǎ\ cot, cart
 ʌu\ oat ɨ\ chin ɛ\ bet ɛ\ easy ɜ\ go ɪ\ hit ɪ\ ice ɪ\ job
 ɪ\ sing ɔ\ go ɔ\ law ɔi\ boy ɨ\ thin ɨ\ the ɨ\ boot ɔ\ foot
 ɪ\ yet ɨ\ vision ǎ. k. " ɑ. æ. ɪ. ɛ. ʌ see Guide to Pronunciation

AX205680

1314 vicinity • viewpoint

vic- LOCAL 2: of, relating to, or being subordinate forms or faces on a crystal which sometimes take the place of fundamental ones 3: of, relating to, or substituted in adjacent sites in a molecule (a ~ disulfide group)

vicinity \və-'sin-ə-tē, n. pl. -ties [MF *vicinité*, fr. L. *vicinitas*, *vicinitas*, fr. *vicinus* neighboring, fr. *vicus* row of houses, village; akin to Goth *weih* village, Gk *oikos*, *oikia* house] (1560) 1: the quality or state of being near 2: PROXIMITY 2: a surrounding area or district: NEIGHBORHOOD 3: NEIGHBORHOOD 3b

vicious \vish-əs, adj. [ME, fr. MF *vicius*, fr. L. *vitiosus* full of faults, corrupt, fr. *vitium* vice] (14c) 1: having the nature or quality of vice or immorality: DEPRAVED 2: DEFECTIVE, FAULTY; also: INVALID 3: IMPURE, NOXIOUS 4 a: dangerously aggressive: SAVAGE (a ~ dog) b: marked by violence or ferocity: FIERCE (a ~ fight) 5: MALICIOUS, SPITEFUL (~ gossip) 6: worsened by internal causes that reciprocally augment each other (a ~ wage-price spiral) — **viciously** adv — **viciousness** n

syd VICIOUS, VILLAINOUS, INQUITOUS, NEFARIOUS, CORRUPT, DEGENERATE mean highly reprehensible or offensive in character, nature, or conduct. **VICIOUS** may directly oppose **virtuous** in implying moral depravity, or may connote malignancy, cruelty, or destructive violence; **VILLAINOUS** applies to any evil, depraved, or vile conduct or characteristic; **INQUITOUS** implies absence of all signs of justice or fairness; **NEFARIOUS** suggests flagrant breaching of time-honored laws and traditions of conduct; **CORRUPT** stresses a loss of moral integrity or probity causing betrayal of principle or sworn obligations; **DEGENERATE** suggests having sunk to an esp. vicious or enervated condition.

vicious circle n (ca. 1792) 1: a chain of events in which the response to one difficulty creates a new problem that aggravates the original difficulty 2: an argument or definition that assumes something that is to be proved or defined

vicissitude \və-'sis-ə-'t(y)ūd, vi- n [MF, fr. L. *vicissitudo*, fr. *vicissim* in turn, fr. *vicis* change, alternation — more at WEEK] (1570) 1 a: the quality or state of being changeable: MUTABILITY b: natural change or mutation visible in nature or in human affairs 2 a: a favorable or unfavorable event or situation that occurs by chance: a fluctuation of state or condition (the ~s of daily life) b: a difficulty or hardship attendant on a way of life, a career, or a course of action and usu. beyond one's control c: alternating change: SUCCESSION

vicissitudinous \və-'sis-ə-'t(y)ūd-nəs, (vi-, -n-əs) adj. [L. *vicissitudin-*, *vicissitudo*] (ca. 1846) marked by or filled with vicissitudes

victim \vik-təm, n. [L. *victim* akin to OHG *wik* holy, Skt *vinakti* he sets apart] (15c) 1: a living being sacrificed to a deity or in the performance of a religious rite 2: one that is acted on and usu. adversely affected by a force or agent (the schools are ~s of the social system); as a (1): one that is injured, destroyed, or sacrificed under any of various conditions (a ~ of cancer) (a ~ of the auto crash) (2): one that is subjected to oppression, hardship, or mistreatment (a frequent ~ of severe political attacks) b: one that is tricked or duped (a con man's ~)

victimize \vik-tə-'mīz, vi- -ized, -izing (1830) 1: to make a victim of 2: to subject to deception or fraud: CHEAT — **victimization** \vik-tə-'mīz-ə-'shən, n — **victimizer** \vik-tə-'mī-zər, n

victimless \vik-təm-'ləs, adj. (1971): having no victim (~ crimes)

victor \vik-tər, n. [ME, fr. L. *victus*, pp. of *vincere* to conquer, win; akin to OE *wigan* to fight, OSlav *wěku* strength] (14c): one that defeats an enemy or opponent: WINNER — **victor** adj

Victor (ca. 1942) — a communications code word for the letter v

victoria \vik-'tōr-ē-ə, -tōr- n [Queen Victoria] (ca. 1844): a low four-wheeled pleasure carriage for two with a calash top and a raised seat in front for the driver

Victoria Cross n (1856): a bronze Maltese cross awarded to members of the British armed services for acts of remarkable valor

Victoria Day n [Queen Victoria] (1901) 1: formerly May 24 and now the Monday preceding May 25 observed in Canada as a legal holiday 2: COMMONWEALTH DAY

victorian \vik-'tōr-ē-ən, -tōr- adj. (1875) 1: of, relating to, or characteristic of the reign of Queen Victoria of England or the art, letters, or tastes of her time 2: typical of the moral standards, attitudes, or conduct of the age of Victoria esp. when considered stuffy or hypocritical

Victorian n (1876): a person living during Queen Victoria's reign; esp. a representative figure of that time

victoriana \vik-'tōr-ē-'ən-ə, -tōr-, -'ən-, -'ən- n [Queen Victoria + E -ana] (1940): materials concerning or characteristic of the Victorian age; also: a collection of such materials

victorianism \vik-'tōr-ē-ə-'nīz-əm, -tōr- n (1905) 1: a typical instance or product of Victorian expression, taste, or conduct 2: the quality or state of being Victorian esp. in taste or conduct

victorious \vik-'tōr-ē-əs, -tōr- adj. (14c) 1 a: having won a victory b: of, relating to, or characteristic of victory 2: evincing moral harmony or a sense of fulfillment: FULFILLED — **victoriously** adv — **victoriousness** n

victory \vik-t(ə)-rē, n. pl. -ries [ME, fr. MF *victorie*, fr. L. *victoria*, fr. *lem*, of (assumed) L. *victorius* of winning or conquest, fr. L. *victus*, pp. of *vincere*] (14c) 1: the overcoming of an enemy or antagonist 2: achievement of mastery or success in a struggle or endeavor against odds or difficulties

victual \vit-'l, n. [alter. of ME *vitailla*, fr. MF, fr. LL *vitalia*, pl. provisions, victuals, fr. neut. pl. of *victualis* of nourishment, fr. L. *victus* nourishment, fr. *victus*, pp. of *vivere* to live — more at QUICK] (14c) 1: food usable by man 2 pl: supplies of food: PROVISIONS

victualer \vit-'l-ər, n. (14c) 1: the keeper of a restaurant or tavern 2: one that provisions an army, a navy, or a ship with food 3: an army or navy provision ship

vicuña or **vicuña** \vik-'kū-nə, vi-, vi-'k(y)ū-nə, və- n [Sp *vicuña*, fr. Quechua *wikuna*] (1593) 1: a wild ruminant (*Lama vicugna*) of the Andes from Ecuador to Bolivia that is related to the domesticated llama and alpaca 2 a: the wool from the vicuña's fine lustrous undercoat b: a fabric made of vicuña wool; also: a sheep's wool imitation of this

vide \vid-ē, \və-'dā, vb. imper. [L. fr. *videre* to see — more at WRIT] (1365) 1: SEE — used to direct a reader to another item

vide-lit \və-'del-ə-'set, vi-, vi-'dā-li-'ket, adv. [ME, fr. L. fr. *videre* to see + *licet* it is permitted, fr. *licere* to be permitted — more at LICENSE] (15c) 1: that is to say: NAMELY

video \vid-ē, \və-'dō, n. (1937) 1: TELEVISION (~ drama); also: the visual portion of television 2: VIDEOTAPE: esp. a recording of a motion picture or television program for playing through a television set

video adj. [L. *videre* to see + E -o (as in audio)] (1938) 1: being, relating to, or used in the transmission or reception of the television image (~ channel) — compare AUDIO 2: being, relating to, or involving images on a television screen or computer display (~ terminal)

video-cassette \vid-ē-ə-'kə-'set, -kə- n (1970) 1: a case containing videotape for use with a VCR 2: a recording (as of a movie) on a videocassette

videocassette recorder n (ca. 1971): VCR

video-conference \,kän-'fə-'rən(t)s, -fərn(t)s, n. (1977): a teleconference conducted by television — **video-conferencing** n

video-disk or **vid-eo-disk** \,dis-k, n. [video + *disc* or *disk*] (1967): a disc similar in appearance and use to a phonograph record on which programs have been recorded for playback on a television set; also: OPTICAL DISC 2: a recording (as of a movie) on a videodisc

video game n (1973): an electronic game played by means of images on a video screen

video-land \,lænd, n. (1967): television as a medium or industry

video-phone \vid-ē-ə-'fōn, n. (ca. 1950): a telephone equipped for transmission of video as well as audio signals so that users can see each other

video-tape \vid-ē-ə-'tāp, n. (1953): a recording of visual images and sound (as of a television production) made on magnetic tape; also: the magnetic tape used for such a recording

videotape vt. (1958): to make a videotape of (~ a show) (~ the president's speech)

videotape recorder n (1953): a device for recording and playing back videotapes — called also **video recorder**

vid-eo-text \,tekst, also **vid-eo-text** \,tekst, n. [video + *text*] (1978): an interactive electronic system in which data is transmitted from a computer network over telephone or cable-television lines and is displayed on a subscriber's television or computer terminal screen

video vérité \,ver-ē-'tā, n. (1969): the filming or videotaping of a television program (as a documentary) so as to convey candid realism

vidette \vid-ē-'tē, n. [fr. *vidette* war of VEDETTE

vidicon \vid-ē-'kən, n. often cap. [video + *iconoscope*] (1950): a camera tube using the principle of photoconductivity

viduity \vid-'yū-ə-'tē, n. [ME *viduit*, fr. MF *viduite*, fr. L. *viduit*, *viduitas*, fr. *vidua* widow — more at WIDOW] (15c): WIDOWHOOD

vie \vi-, vb. [fr. *videre* to see] (15c): to strive for superiority: to contend, compete ~ vt. archaic: WAGER, HAZARD; also: to exchange in rivalry: WATCH syn see RIVAL — **vier** \vi-'ər, n

Vien-na \vi-'en-ə, n. [Vienna, Austria] (ca. 1902): a slender frankfurter

Viet-cong \vət-'et-'kən, vi-et-, -vət-, -vət-, n. pl. **Vietcong** [Vietnamese *Việt Nam cộng-san* Vietnam communist movement] (1957): a guerrilla member of the Vietnamese communist movement

Viet-minh \vī-'mīn, n. pl. **Vietminh** [Vietnamese *Việt Nam Độc-Lập-Dân-Minh* League for the Independence of Vietnam] (1945): an adherent of the Vietnamese communist movement from 1941 to 1951

Vietnamese \vət-'et-'nə-'mēz, -vət-, -vət-, -nə-, -nə-, -mēs, n. pl. **Vietnamese** (1947) 1: a native or inhabitant of Vietnam 2: the language of the largest group in Vietnam and the official language of the country — **Vietnamese** adj

view \vyū, n. [ME *veue*, fr. MF *veue*, fr. OF, fr. *veire*, *voir* to see, L. *videre* — more at WRIT] (15c) 1: the act of seeing or examining: INSPECTION; also: SURVEY (a ~ of English literature) 2 a: a mode or manner of looking at or regarding something b: an opinion or judgment colored by the feeling or bias of its holder (in my ~ the evidence has no chance of success) 3: SCENE, PROSPECT (the lovely ~ from the balcony) 4: extent or range of vision: SIGHT (tried to keep the ship in ~) (sat high in the bleachers to get a good ~) 5: something that is looked toward or kept in sight: OBJECT (studied hard with a ~ to getting an A) 6: the foreseeable future (no hope in ~) 7: a partial representation syn see OPINION — in view of: in regard to: consideration of — on view: open to public inspection: on exhibition

view vt. (1523) 1: to look at attentively: SCRUTINIZE, OBSERVE (~ exhibit) (~ the landscape) 2 a: SEE, WATCH (~ a film) b: to look on in a particular light: REGARD (doesn't ~ himself as a rebel) 3: to survey or examine mentally: CONSIDER (~ all sides of a question)

viewable \vyū-'ə-bəl, adj.

view-data \vyū-'dāt-ə, also -dāt-, n. (1975): VIDEOTEX

viewer \vyū-'ər, n. (15c): one that views: a: a person legally appointed to inspect and report on property b: an optical device in viewing c: a person who watches television

viewer-ship \,ship, n. (1954): a television audience esp. with respect to size or makeup

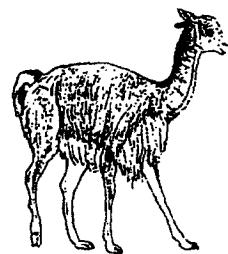
view-finder \vyū-'fīn-dər, n. (1889): FINDER 3

view halloo \vyū-'hə-'loo, interj. (1761) — used in fox hunting on a fox break cover

viewing n (ca. 1548): an act of seeing, watching, or taking a look at: an act of watching television

view-less \vyū-'ləs, adj. (1603) 1: not perceivable: INVISIBLE 2: fording no view 3: expressing no views or opinions — **view-less** adv

view-point \,pōint, n. (1855): POINT OF VIEW, STANDPOINT



vicuña 1

EXHIBIT 2

BKSTS Dictionary of Image Technology

Focal Press
London and Boston

EKC000156342

DISTINCT

Focal Press

is an imprint of the Butterworth Group

which has principal offices in

London, Boston, Durban, Singapore, Sydney, Toronto and Wellington

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, including photocopying and recording, without the written permission of the copyright holder, application for which should be addressed to the Publisher, or in accordance with the provisions of the Copyright Act 1956 (as amended), or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency, 7 Ridgmount Street, London WC1E 7AE, England. Such written permission must also be obtained before any part of this publication is stored in a retrieval system of any nature.

Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages.

This book is sold subject to the Standard Conditions of Sale of Net Books and may not be re-sold in the UK below the net price given by the Publishers in their current price list.

First edition published in 1983 as
BKSTS Dictionary of Audio-visual Terms
Revised and extended 1988

© Butterworth & Co (Publishers) 1988

British Library Cataloguing in Publication Data

BKSTS dictionary of image technology. – Rev. and extended.

1. Audiovisual equipment. Encyclopaedias
- I. British Kinematograph Sound and Television Society
- II. Happé, L. Bernard, (Louis Bernard)

621.38'044'0321

ISBN 0-240-51276-6

Library of Congress Cataloging-in-Publication Data

BKSTS dictionary of image technology.

Rev. ed. of: BKSTS dictionary of audio-visual terms, 1983

1. Audio-visual equipment--Dictionaries. I. British Kinematograph Sound and Television Society. II. BKSTS dictionary of audio-visual terms.

III. Title: Dictionary of image technology.

TS2301.A7 B37 1988

621.38'044'0321

88-30221

ISBN 0-240-51276-6

Preface

The past six technologies & this fully rev. described as a title, *Diction.* deavoured to being debated

As Editor committee wt Lowe whose *Video* suggest

Bernard Hapi

May 1988

Typeset by Scribe Design, 123 Watling Street, Gillingham, Kent.
Printed and bound by Hartnolls Ltd, Bodmin, Cornwall

passage
 reduce
 t, paint
 opaque
 on shot
 another
 s.
 support.
 lel with
 erating
 ge. (cf.
 tion of
 ee con-
 ether to
 ulticore
 ecution
 ernal or
 aration
 camera
 m other
 mpress-
 el of the
 inter or
 d out of
 ufactur-

bridge An electrical or electronic instrument for measuring resistance, capacitance or inductance.
bridging Electrically joining two or more points.
brightness The property of a surface emitting or reflecting light; *luminance*. It is measured in candelas per square metre.
brightness control In a video monitor or receiver, the control which increases the *black level*.
broadcast standard In video practice, representing the highest quality of recording and reproduction, capable of meeting the stringent requirements of broadcasting organisations.
broad A *luminaire* for wide general illumination.
brown out A mains voltage reduction, more common on 110V supplies, liable to lead to equipment malfunction.
BRT Belgische Radio en Televisie, Belgian state broadcast network in Flemish language.
bruch blanking Sequence of switching off the *colour burst* during field blanking in a *PAL* system to improve stability in the colour television receiver.
brush (1) A wiping electrical contact commonly comprising a carbon compound conductor which is pressed on to a smooth conducting surface by a spring. (2) In computer *painting* a marker that draws a line or a pattern on the display surface.
brute A large high-intensity spot light, usually an arc lamp.
BS British Standard.
BSI British Standards Institution. The British national standards authority.
BT British Telecom.
BTL Behind the Lens, filter position in a camera.
BTS Broadcast Television System (a term used in the USA).
bubble memory A non-volatile computer memory where the data is held in the form of magnetic discontinuities or bubbles.
bucket brigade A shift register type of circuit which functions by passing packets of (analogue) information from one element to the next like buckets being passed from hand to hand. Commonly applied to *charge coupled devices*.
buckle switch Switch fitted in a motion picture or rostrum camera to stop it running if the film piles up or is improperly threaded.
buffer (1) A storage area which receives and then releases transient data. (2) Electronic device in a signal path designed to pass or augment signals but to hold back unwanted or damaging conditions.
BUFVC British Universities Film and Video Council.
bug A software error which causes an unintended result. The act of eradicating these faults is termed 'debugging'.

4:2:2 Refers to the ratio of digital TV sampling frequencies for the *luminance* and *chrominance* signals specified in *CCIR Rec. 601*.

FP Front Projection.

FPGA Field Programmable Gate Array.

FPLA Field Programmable Logic Array.

FPLS Field Programmable Logic Sequencer.

fps Frames per second.

FR3 France Région 3, the third French state broadcast TV network.

frame (1) An individual picture image on motion picture film.

(2) In video, the picture formed by a pair of interlaced fields. (3)

In computer graphics, one *refresh* of a display image.

frame grab In computer graphics, temporary storage of a video frame for later manipulation by a graphics input device.

frame counter In motion picture equipment, a counter registering the number of frames of film passing through it.

frame line The space between consecutive frames on film.

frame rate For sound film a rate of 24 frames per second has been standard since 1927 but a rate of 30 fps has been proposed for improved quality of presentation; in television and video 30 fps is standard for *NTSC* systems and 25 fps for *PAL* and *SECAM*.

frame store A storage system capable of storing a complete frame of video information in digital form. Used for television standards conversion and sophisticated special effects units.

framing Adjusting the film image in the projector gate aperture so that the projected image appears centred in the vertical dimension of the screen.

free field Sound field with no reflective surfaces.

free head A recording head without electronics, provided on an audio cassette recorder for use with tape-slide control equipment.

freeze frame A visual effect in which a single picture from a moving scene is repeated to hold the action stationary for as long as is required. Also called *hold frame*.

freeze grab Facility in a TV field or frame store to monitor a continuous input signal and select a field or frame at a pre-determined rate, reproducing this as a still frame until updated by the next.

french brace A strut used to support scenery.

frequency The number of times that a periodic function or oscillation repeats itself in a specified time, usually one second. Hertz (oscillations per second) is the preferred unit; cycles-per-second is deprecated.

frequency modulating the frequency response and frequency
Fresnel lens which is a section of a lens in an oval

fringing (1) defective or full track to an exaggerated front axial projection ground to the axis of reflecting surface front end In those conditions editing and action.

front porch period between the horizontal front projection the same as full bleed F some of it fuse An interface fail if the fusible link is rammed to fusion point refresh rate FVPG Film FX Effects

still frame Continuous reproduction of one stationary image from a train of recorded images, in either motion picture or video.

stock General term for unexposed cinematograph film. (*Raw stock*).

stock numbers Sequential identification numbers applied at fixed intervals on the edge of cinematograph film during original manufacture.

stock shot = *library shot*; see *library*.

stop bit(s) In serial data transmission, the period or periods of equal duration to the data element which terminate a character or block. They ensure enough time to be ready for the next *start bit*.

stop frame In cinematography, the repeated printing of a single frame to appear as a still picture when projected.

stop The opening of a lens controlling the amount of light transmitted (= *diaphragm*).

stop motion The operation of a motion picture camera, printer or projector one frame at a time.

store Device or system into which data can be entered for retrieval later.

storage tube A cathode ray tube which does not require *refreshing* to maintain its display.

story board Chart consisting of a series of still pictures, usually drawings, summarising the contents of a proposed film, video or slide production.

streaming tape drive A type of digital data recorder for bulk storage, used for *dumping*, usually recording successive tracks continuously in alternate directions.

strike (1) To dismantle and remove *sets* or *props*. (2) To light an arc lamp.

string In computer practice, a type of *variable* consisting of a sequence of characters, correctly referred to as a literal, enclosed in quotation marks, e.g. DAY = "TUESDAY".

stringy floppy In computer data storage, a bulk storage system based on magnetic tape, usually endless.

stripe A narrow band of magnetic material applied to photographic motion picture film for sound recording and reproduction.

stripe mask The mask of a *slot mask tube*.

striping (1) Applying a magnetic stripe to motion picture film. (2) Adding longitudinal *time-code* to video rushes after shooting.

strobe lighting Electronic flash lighting synchronised with a motion picture camera frame rate, giving sharp images of fast moving objects.

strobing A field or frame rotating on a stroboscope rotation of objects. (1) circumference such as clock lighting.

STV (1) Secondary of images Radi stylus (1) can be made: pencil-like or for self subcarrier carrier from a module frequency subroutine program several times subtitle A film or video the hard super *Superimposed* that both a picture superslide standard supertroupy suppression by fitting surface with operative device. surround-arrange S-VHS S system. SVR Super sweetening match records

violet light
eprogram-

giving 180°
o or more

nnecting a

he product
rd to phase
tering the
ie as watts.

i the image

which the
odulation.
rolling two
frequency.

ly variable

to refer to
each name
nteger, real

name).
ty that its
l in tuners.
1 magnetic
t may be a

Controlled

alers' Asso-

VDR Voltage-Dependent Resistor.

VDI Visual Display Terminal used for communicating with computers.

VDU *visual display unit*.

vector (1) A representation of magnitude and direction. (2) A line connecting defined points on a cathode ray tube. (3) A pointer used to allow access to relocatable program or data.

vector graphics A method of presenting graphical data in which the display is composed of *vectors* drawn directly from point to point on the cathode ray tube instead of using a *raster*, thus avoiding *aliasing*. (= *vector mode display*).

vectorscope In television, a special oscilloscope used for monitoring colour bars.

vertical interval Field blanking period between pictures. Cuts taking place in the vertical interval are not visible on the picture.

VHD Video High Density, grooveless capacitance videodisc system. (Trade name).

VHF Very High Frequency, of radio waves. 30 MHz to 300 MHz.

VHS Video Home System, a videocassette system, using ½ inch tape. (Trade name).

VHS-C Compact video cassette system using the *VHS* format.

VIBGYOR A mnemonic for the order of colours in the visible spectrum, i.e. Violet, Indigo, Blue, Green, Yellow, Orange, and Red. Outside this range are Ultra-violet and Infra-red.

video (1) Electronic means of recording, storing and reproducing visual images. (2) Incorrectly used for a home video recorder, or a *videogram*.

video cassette A cassette containing video recording tape with separate supply and take-up spools. In the recorder or player, a loop of tape is drawn into the machine and returned to the cassette. (In contrast to *cartridge* or *reel-to-reel*).

video conferencing The use of bi-directional vision and sound links to permit a conference between two or more participants at different locations.

videodisc A video and audio recording on a flat rotating medium, usually using digital storage, by optical (reflected laser) or mechanical (capacitive) means.

video dub Recording or re-recording the picture and sync control tracks of a videotape without disturbing the existing audio signal.

videogram The programme content of a video cassette or videodisc.

videographics Direct manual creation of graphics on a *VDU* for videotape recording, not by computer generation.

videography Telecommunications involving selection and display

- of textual and pictorial information on a *VDU* (= *videotex*); *teletext* is broadcast videography.
- videophone** Still picture transmission over conventional telephone lines.
- video signal** The signal in its basic form, not modulated on to an RF carrier. The video signal cannot be fed directly to the aerial input of a domestic TV receiver.
- videotape** Magnetic tape specifically designed for use as a video recording medium.
- videotex** General term for an information service of selected alpha-numeric/graphic data, presented as a still-picture video display.
- video theatre** A place of entertainment, where moving pictures and sound are presented by projection television.
- videowall** Mosaic assembly, usually in a rectangular block, of a number of individual video screens, displaying multiple, individual or composite images from *VTR*, *videodisc* or computer sources.
- Vidicon** TV camera tube employing a photo-conductive image detector. (Trade name).
- Viditel** Dutch viewdata service.
- Viewdata** A *videotex* data service distributed by (telephone) cable, and accessed by direct dialling.
- viewer** Optical device for inspecting the picture image on a film or slide.
- viewfinder** An optical or video system allowing a cameraman to see the scene embraced by the camera lens.
- vignetting** Gradual shading of the edges surrounding a picture area.
- vinegar syndrome** Decomposition of acetate-base film, producing a characteristic odour.
- VIPS** Visual Information Processing System, trade name for a *interactive* computer/videodisc system by Sony.
- virtual earth** A type of amplifier presenting a zero input impedance. Current signals may be combined at the amplifier's input without interaction.
- viscous process** Photographic processing in which the chemicals are applied as layers of viscous solutions.
- visual display unit** A display device containing a cathode ray tube screen, on which information, often from a computer, can be shown. A keyboard is usually incorporated to select the required information.
- VITC** Vertical Interval Time Code, recorded between frames for video editing.
- VITS** Vertical Insertion Test Signals.

VLF Very
VLP Very
VLSI Ver
VMOS V
VO voice
vocoder A
bands an
energy in
modulate
voice over
the speal
voice track
as oppos
volatile me
fails or is
voltage con
proportio
volume c
voltage con
is propor
frequenc
voltage foll
the outp
spite of
volume T
VOM Vc
vox pops
member
VT video
VTR Vic
pictures
VTVM V
voltmet
VU meter
defined

W watt.
walk thro
without
run.
warble to
watt Ur

EXHIBIT 3

donea c. abat-jour A batter; abbazzo Abbe condens. Abbe refractometer ABC abcoulomb, p. abdomen abdominal gest. abduction abdu-
ism Abbe's sine co. abdominal hernia abdominal hysterectomy abducens abduction abdu-
e's theory abbreviated dialing ABC abdomen abdominal gest. abduction abdu-
AC system Abderhalden reaction abducens abduction abdu-
abdominal hernia abdominal hysterectomy abducens abduction abdu-

McGraw-Hill DICTIONARY OF SCIENTIFIC TERMS

Second Edition

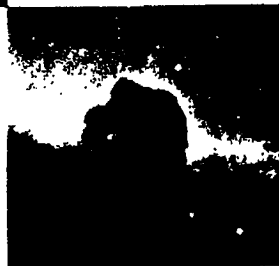
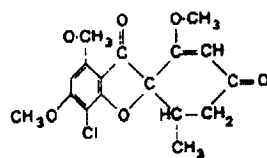
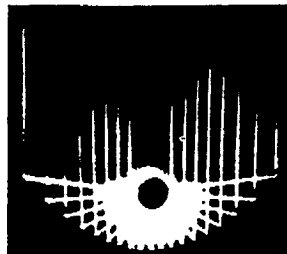
abeam Abegg's rule Abelian abelite Abel's ineq. Abies abietic acid abiotic
Abel's integral equation abenteric aberrant abiotic environment
abfarad abhenry Abies abietic acid abiotic environment
abiogenesis abiotic abiotic environment ablation ablation
ablastin ablation ablation form ablation

AX201313

McGraw-Hill
DICTIONARY OF
SCIENTIFIC AND
TECHNICAL
TERMS **Second Edition**

AX201314

McGraw-Hill DICTIONARY OF SCIENTIFIC AND



AX201315

UH 46123

Eng
Sci
#23

TECHNICAL TERMS

Second Edition

DANIEL N. LAPÉDES

Editor in Chief

McGRAW-HILL BOOK COMPANY

New York St. Louis San Francisco
Auckland Bogotá Düsseldorf Johannesburg
London Madrid Mexico Montreal New Delhi Panama
Paris São Paulo Singapore Sydney Tokyo Toronto

AX201316

Included in this Dictionary are definitions which have been published previously in the following works: P. B. Jordain, *Condensed Computer Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. J. Markus, *Electronics and Nucleonics Dictionary*, 4th ed., Copyright © 1960, 1966, 1978 by McGraw-Hill, Inc. All rights reserved. J. Quick, *Artists' and Illustrators' Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. *Blakiston's Gould Medical Dictionary*, 3d ed., Copyright © 1956, 1972 by McGraw-Hill, Inc. All rights reserved. T. Baumeister and L. S. Marks, eds., *Standard Handbook for Mechanical Engineers*, 7th ed., Copyright © 1958, 1967 by McGraw-Hill, Inc. All rights reserved.

In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS
Copyright © 1974, 1976, 1978 by McGraw-Hill, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publishers. Philippines Copyright, 1974, 1976, 1978, by McGraw-Hill, Inc.

10 9 8 7 6 5 4 3

Library of Congress Cataloging in Publication Data

McGraw-Hill dictionary of scientific and technical terms.

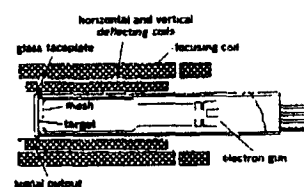
1. Science--Dictionaries. 2. Technology--Dictionaries. I. Lapedes, Daniel N., ed. II. Title: Dictionary of scientific and technical terms.
Q123.M15 1978 503 78-18265
ISBN 0-07-045258-X

AX201317

vicinal Viking spacecraft

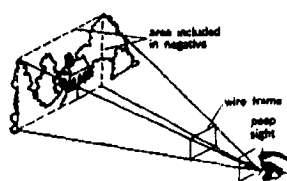
1718

VIDICON



Cross section of vidicon tube and its associated deflection and focusing coils. Target consists of transparent signal electrode deposited on faceplate of tube and thin layer of photoconductive material deposited over electrode. Mesh ensures uniform deceleration and collimation of electron beam.

VIEWFINDER



Frame or peep-sight finder, the simplest type of viewfinder. (Illustration provided by Eastman Kodak Co., from Willard D. Morgan, ed., *The Complete Photographer*, National Educational Alliance, 1941-1943)

vicinal [ORG CHEM] Referring to neighboring or adjoining positions on a carbon structure (ring or chain).

vicinal faces [CRYSTAL] Macroscopic crystal faces which are inclined only a few minutes of arc to crystal faces with low Miller indices, and which therefore must have high Miller indices themselves.

Vickers hardness test See diamond pyramid hardness test.

Vicumatic coupling [DES ENG] A development in which a groove is cut around each end of pipe instead of the usual threads; two ends of pipe are then lined up and a rubber ring is fitted around the joint; two semicircular bands, forming a sleeve, are placed around the ring and are drawn together with two bolts, which have a ridge on both edges to fit into the groove of the pipe; as the bolts are tightened, the rubber ring is compressed, making a watertight joint, while the ridges fitting in the grooves make it strong mechanically.

Victoria blue [ORG CHEM] $C_{13}H_{11}N_3 \cdot HCl$ Bronze crystals, soluble in hot water, alcohol, and ether; used as a dye for silk, wool, and cotton, as a biological stain, and to make pigment toners.

vicuna [VERT ZOO] *Lama vicugna*. A rare, wild ruminant found in the Andes mountains; the fiber of the vicuna is strong, resilient, and elastic but is the softest and most delicate of animal fibers.

video [ELECTR] 1. Pertaining to picture signals or to the sections of a television system that carry these signals in either unmodulated or modulated form. 2. Pertaining to the demodulated radar receiver output that is applied to a radar indicator.

video amplifier [ELECTR] A low-pass amplifier having a band-width on the order of 2-10 megahertz, used in television and radar transmission and reception; it is a modification of an RC-coupled amplifier, such that the high-frequency half-power limit is determined essentially by the load resistance, the internal transistor capacitances, and the shunt capacitance in the circuit.

Videocomp [GRAPHICS] A method developed by Radio Corporation of America for composing type electronically; instructions for writing various characters are contained in a computer data bank; the computer controls a buffer unit which supplies drive and deflection voltages to a cathode-ray tube to write and locate the character on its face, where the character is photographed.

video correlator [ELECTR] Radar circuit that enhances automatic target detection capability, provides data for digital target plotting, and gives improved immunity to noise, interference, and jamming.

video data digital processing [COMMUN] Digital processing of video signals for pictures transmitted over a television link; the computer compares each scanned line with adjacent lines and eliminates extreme changes caused by electromagnetic interference.

video discrimination [ELECTR] Radar circuit used to reduce the frequency band of the video amplifier stage in which it is used.

video disk recorder [ELECTR] A video recorder that records television visual signals and sometimes aural signals on a magnetic, optical, or other type of disk which is usually about the size of a long-playing phonograph record.

video frequency [COMMUN] One of the frequencies existing in the output of a television camera when an image is scanned; it may be any value from almost zero to well over 4 megahertz.

Videograph [ELECTR] Trademark of A. B. Dick Company for a high-speed cathode-ray character generator and electrostatic printer, used for printing magazine address labels under control of magnetic tape files of computer-processed addresses; the moving electron beam applies a charge on a dielectric-coated paper to form electrostatic images of characters; powder is then attracted to the image areas and fused to give readable addresses.

video integrator [ELECTR] 1. Electric counter-countermeasures device that is used to reduce the response to nonsynchronous signals such as noise, and is useful against random pulse signals and noise. 2. Device which uses the redundancy of repetitive signals to improve the output signal-to-noise ratio, by summing the successive video signals.

video masking [ELECTR] Method of removing chaff echoes and other extended clutter from radar displays.

video player [ELECTR] A player that converts a video disk, videotape, or other type of recorded television program into signals suitable for driving a home television receiver.

video recorder [ELECTR] A magnetic tape recorder capable of storing the video signals for a television program and feeding them back later to a television transmitter or directly to a receiver.

video replay [ELECTR] Also known as video tape replay. 1. A procedure in which the audio and video signals of a television program are recorded on magnetic tape and then the tape is run through equipment later to rebroadcast the live scene. 2. A similar procedure in which the scene is rebroadcast almost immediately after it occurs. Also known as instant replay.

video signal [COMMUN] In television, the signal containing all of the visual information together with blanking and synchronizing pulses. [ELECTROMAG] See target signal.

video tape [ELECTR] A heavy-duty magnetic tape designed primarily for recording the video signals of television programs.

video tape recording [ELECTR] A method of recording television video signals on magnetic tape for later rebroadcasting of television programs. Abbreviated VTR.

video tape replay See video replay.

video telephone [COMMUN] A communication instrument which transmits visual images along with the attendant speech.

video transformer [ELECTR] A transformer designed to transfer, from one circuit to another, the signals containing picture information in television.

video transmitter See visual transmitter.

videon [ELECTR] A camera tube in which a charge-density pattern is formed by photoconduction and stored on a photoconductor surface that is scanned by an electron beam, usually of low-velocity electrons; used chiefly in industrial television cameras.

view camera [OPTICS] A camera that can be focused at both front and back, with adjustments for tilts, swings, shifts, and rise and fall, to control the shape of the subject in the image; it has a groundglass on the back which enables the photographer to view the image to be recorded.

viewfinder [ELECTR] An auxiliary optical or electronic device attached to a television camera so the operator can see the scene as the camera sees it. [OPTICS] A device which provides the user of a camera with the view of the subject that is focused by the lens.

viewing screen See screen.

viewing storage tube See direct-view storage tube.

viewing time [ELECTR] Time during which a storage tube is presenting a visible output corresponding to the stored information.

view printer [GRAPHICS] In microfilm technology, a reader with built-in facilities to expose and process enlargements.

vigia [NAV] 1. A rock or shoal whose existence or position is doubtful. 2. A warning note of a vigia condition on a chart.

Vigilante [AERO ENG] A United States supersonic, twin-engine, turbojet tactical, all-weather attack aircraft designed to operate from aircraft carriers, and capable of delivering nuclear or nonnuclear weapons; it has electronic countermeasures equipment, long-range radar, automatic pilot guidance features, inflight refueling capabilities, and a crew of pilot and bombardier. Designated A-5.

vignette [GRAPHICS] To lighten the edges of a photograph or a halftone illustration so it gradually disappears into the surrounding white of the paper, leaving no sharp edge.

vignetting [OPTICS] Reduction in intensity of illumination near the edges of an optical instrument's field of view caused by obstruction of light rays by the edge of the aperture.

vigoureux printing [TEXT] Printing worsted fibers before spinning in order to achieve a mixture of light and dark shades in the finished fabric.

Vigreux column [ANALY CHEM] An obsolete apparatus used in laboratory fractional distillation; it is a long glass tube with indentation in its walls; a thermometer is placed at the top of the tube and a side arm is attached to a condenser.

Viking spacecraft [AERO ENG] A series of two United States

AX201335

EXHIBIT 4

ELECTRONICS DICTIONARY

Accurate, easy-to-understand, and up-to-date
definitions for 17,090 terms used in solid-state
electronics, computers, television, radio,
medical electronics, industrial electronics,
satellite communication, and military
electronics

FOURTH EDITION

JOHN MARKUS

Consultant, McGraw-Hill Book Company
Senior Member, Institute of Electrical and
Electronics Engineers

McGraw-Hill Book Company

New York St. Louis San Francisco Auckland
Bogotá Düsseldorf Johannesburg London Madrid
Mexico Montreal New Delhi Panama Paris
São Paulo Singapore Sydney Tokyo Toronto

EKC000155864

Library of Congress Cataloging in Publication Data

Markus, John, date.

Electronics dictionary.

Third ed. published under title: Electronics and nucleonics dictionary.

1. Electronics—Dictionaries. 2. Nuclear engineering—Dictionaries. I. Title.

TK7804.M35 1978 621.381'03 77-13876

ISBN 0-07-040431-3

Copyright © 1978 by McGraw-Hill, Inc. All rights reserved.
Copyright 1945 by McGraw-Hill, Inc. All rights reserved.
Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Copyright © 1966, 1960 under the title *Electronics and Nucleonics Dictionary* by McGraw-Hill, Inc. All rights reserved.

1234567890 KPKP 7654321098



The editors for this book were Harold B. Crawford, Alice Goehring, and Beatrice Carson, the designer was Naomi Auerbach, and the production supervisor was Teresa F. Leaden. It was set in Baskerville by University Graphics, Inc.

Printed and bound by The Kingsport Press.

EKC000155865

video frequency

coil carrying the alternating current, so the reed moves in synchronism with the current.

vibrating-sample magnetometer A device that determines the magnetic properties of a sample of magnetic material by vibrating it in a magnetic field and measuring the voltage induced in search coils near the sample.

vibration A periodic change in the position of an object, such as a pendulum or a diaphragm of a loudspeaker energized by a sinusoidal current. Also called oscillation.

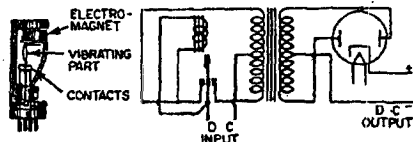
vibration galvanometer An AC galvanometer in which the natural oscillation frequency of the moving element is equal to the frequency of the current being measured.

vibration meter An instrument that measures the displacement, velocity, and acceleration associated with mechanical vibration. In one form it consists of a piezoelectric vibration pickup that has uniform response from 2 to 1000 Hz, feeding an amplifier which has an indicating meter at its output. Also called vibrometer.

vibration pickup A pickup that responds to mechanical vibrations rather than to sound waves. In one type, twisting or bending of a Rochelle-salt crystal generates a voltage that varies in accordance with the vibration being analyzed.

vibrato A musical embellishment that depends primarily on periodic variations of frequency, which are often accompanied by variations in amplitude and waveform.

vibrator An electromagnetic device for converting a direct voltage into an alternating voltage. It contains a vibrating armature, on which are con-



Vibrator construction and basic circuit.

tacts that reverse the direction of current flow during each vibration. Used to convert the voltage of a storage battery into a low alternating voltage that can be stepped up by a power transformer and rectified.

vibrator-type inverter A device that uses a vibrator and an associated transformer or other inductive device to change DC input power to AC output power.

vibratory gyroscope A instrument that utilizes a vibrating rod or tuning fork to perform certain equilibrium or directional functions of the spinning gyroscope.

vibrometer *Vibration meter.*

video [Latin for "I see"] 1. Pertaining to picture signals or to the sections of a television system that carry these signals in either unmodulated or mod-

ulated form. 2. Pertaining to the demodulated radar receiver output that is applied to a radar indicator.

video amplifier A wideband amplifier capable of amplifying video frequencies in radar and television.

video cable Coaxial cable used for signal transmission in cable television systems. Basic types include 75- Ω unbalanced indoor cable and outdoor cable that has a single conductor centered in a shield and 124- Ω balanced indoor cable and outdoor cable which has two parallel or twisted insulated conductors centered in a shield.

video circuit A broadband circuit that carries intelligence which could become visible.

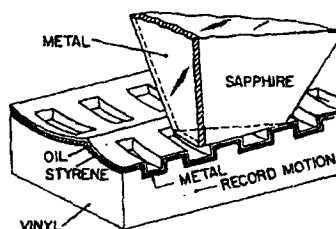
video converter A converter that consists of a television camera tube and a cathode-ray tube between which may be inserted a transparent overlay. The image on the overlay is illuminated by the radial scan of the cathode-ray tube and converted to video signals by the camera tube, for superimposition on a radar PPI display or other radar applications.

video correlator A radar circuit that enhances automatic target-detection capability, provides data for digital target plotting, and gives improved immunity to noise, interference, and jamming.

video data digital processing Digital processing of video signals for pictures transmitted over a television link, to improve picture quality by reducing the effects of noise and distortion. The computer compares each scanned line with adjacent lines and eliminates extreme changes caused by electromagnetic interference.

video detector The detector that demodulates video IF signals in a television receiver.

video disk recorder A video recorder that records television visual signals and sometimes aural signals on a magnetic, optical, or other type of disk.



Video disk recorder in which metallized sapphire stylus detects variations in capacitance caused by changes in width and spacing of metallized grooves in each track on vinyl disk.

which is usually about the size of a long-playing phonograph record.

video frequency One of the frequencies that exist in the output of a television camera when an image is scanned. It may be any value from almost zero to well over 4 MHz.